

What is claimed is:

1. An isolated polypeptide comprising a BOG polypeptide fragment, said BOG
5 fragment comprising a pRb binding motif and a casein kinase II phosphorylation motif.
2. The BOG polypeptide fragment of claim 1, wherein said BOG polypeptide fragment is a full length BOG polypeptide.
- 10 3. The BOG polypeptide fragment of claim 1, comprising an amino acid sequence as shown in Table 1, 5 or 7.
4. The BOG polypeptide fragment of claim 1, wherein said casein kinase II phosphorylation motif is located downstream of the pRb binding motif.
- 15 5. The BOG polypeptide fragment of claim 4, further comprising a second casein kinase II phosphorylation motif, said second casein kinase II phosphorylation motif being located upstream of the pRb binding motif.
- 20 6. The BOG polypeptide fragment of claim 1 joined to a detectable label.
7. The BOG polypeptide fragment of claim 6, wherein the detectable label includes a radioactive isotope, an enzyme, a chromophore or a mixture thereof.
- 25 8. An isolated nucleic acid encoding a BOG polypeptide fragment.
9. The nucleic acid of claim 8, comprising a nucleotide sequence coding for an amino acid sequence as shown in Table 1, Table 5 or Table 7.
- 30 10. The nucleic acid of claim 8, wherein the nucleic acid sequence is codon optimized for a specific host cell.
11. The nucleic acid of claim 8 joined to a detectable label.

12. A nucleic acid probe capable of hybridizing with the nucleic acid of claim 8.
13. The nucleic acid of claim 8, wherein said nucleic acid is DNA.
- 5 14. The nucleic acid of claim 13, wherein the DNA is cDNA.
15. The nucleic acid of claim 8, wherein the nucleic acid is RNA.
- 10 16. The nucleic acid of claim 15, wherein the RNA is mRNA.
17. A vector comprising a polynucleotide encoding the BOG polypeptide fragment of claim 1.
- 15 18. The vector of claim 17, wherein the nucleic acid is operably linked to at least one control sequence capable of being recognized by a host cell transformed with the vector.
19. A host cell comprising the vector of claim 18.
- 20 20. A process for producing BOG polypeptide fragments comprising culturing the host cell of claim 19 under conditions such that the BOG polypeptide fragment is produced.
- 25 21. A BOG polypeptide fragment produced by the method of claim 20.
22. A BOG antisense oligonucleotide comprising a nucleotide sequence which is complimentary to an mRNA encoding a polypeptide comprising a BOG polypeptide fragment.
- 30 23. A chimeric molecule comprising a BOG polypeptide fragment fused to a heterologous amino acid sequence.
24. An isolated BOG specific polypeptide comprising an F_{ab} fragment from an antibody
- 35 capable of specifically binding to a BOG polypeptide fragment.

25. The isolated BOG specific polypeptide of claim 24, wherein said polypeptide comprises an isolated antibody.
- 5 26. The BOG specific polypeptide of claim 25, wherein said antibody is a polyclonal, monoclonal or chimeric antibody.
27. A method of assaying a sample for a polynucleotide encoding a BOG polypeptide fragment comprising detecting the presence or absence of said polynucleotide in said
10 sample utilizing the nucleic acid probe of claim 12.
28. A method of assaying a sample for a BOG polypeptide fragment comprising detecting the presence or absence of said BOG polypeptide fragment in said sample utilizing an isolated BOG specific polypeptide which includes a F_{ab} fragment from an antibody
15 capable of specifically binding to the BOG polypeptide fragment.
29. A method of reducing BOG polypeptide fragment expression in a cell comprising exposing the cell to an oligonucleotide of at least about 15 nucleotides which are complementary to a BOG mRNA.
20
30. A method of inducing apoptosis in cells overexpressing BOG polypeptide fragments comprising exposing said cells to an effective amount of TGF- β and at least one BOG antisense oligonucleotide.
- 25 31. A method for producing cell lines having an altered phenotype comprising:
 (i) transfecting in vitro mammalian cells with a DNA vector encoding a BOG polypeptide fragment;
 (ii) expressing the BOG polypeptide fragment in said cells; and
 (iii) selecting for cells having an altered phenotype.
30
32. A method of inhibiting the interaction between a pRb A/B domain binding protein and a pRb family member comprising exposing the pRb family member to a BOG polypeptide fragment.